

COLORADO DEPARTMENT OF TRANSPORTATION

Region 6 425 B Corporate Circle. Golden, Colorado 80401 (720) 497-6954



BRONCO ARCH BRIDGE REPLACEMENT CONSTRUCTION MANAGEMENT, CONSTRUCTION INSPECTION & MATERIALS TESTING SCOPE OF WORK

BR R600-297 (16212) I-25 over South Platte River

November 5, 2010 Region 6

The Contract Administrator for this Task Order will be:

Randy Furst, Resident Engineer Region 6, 425 B Corporate Cir Golden, CO 80401 Office: (720) 497-6954

Mobile: (303) 916-0570

Active Day to Day administration and monitoring of this contract will be delegated to the following CDOT employee:

Chris Paiz, Project Engineer Region 6, 425B Corporate Cir Golden, CO 80401 Office: (720) 497-6967

Mobile: (303) 916-1051 Fax: (720) 497-6951

General Scope of Work

CDOT has need of a consultant to provide construction administration support, Project Engineering, inspection, and materials-testing services for construction of the Bronco Arch Bridge Replacement project. The bridge, Structure # F-16-DP (also known as the Bronco Arch Bridge), is part of I-25 over the South Platte River, at mile marker 210.53 near INVESCO Field.

Definitions

CDOT Resident Engineer – The CDOT Resident Engineer is responsible to the CDOT Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to Contracts for all Consultants and Contractors.

CDOT Project Engineer - The CDOT employee assigned by the Resident Engineer to be the Chief Engineer's duly authorized representative. The Project Engineer is in direct charge of the project work and is responsible for the administration and satisfactory and safe completion of the project under the contract.

Consultant - The firm or corporation providing personnel under this agreement to perform construction services as outlined herein.

Consultant Professional Engineer - The Consultant employee that manages the consultant contract, and is in direct responsible charge of Consultant personnel and services performed as described in this Contract. This person must be a currently licensed Colorado Professional Engineer. Additionally, this person prepares, reviews, certifies and signs billings for consultant services, and provides quality assurance of services performed on the project.

Consultant Assistant Project Engineer -. The Consultant Assistant Project Engineer is present on the project site on a daily basis, provides daily supervisory management of consultant personnel, and assists with administration of the Consultant contract on a daily basis.

Consultant Inspector and Materials Testing Technician (MTT) - Consultant employees who perform construction inspection, construction materials-testing services, and other project-related services under the responsible charge of the Consultant Assistant Project Engineer, and at the direction of the CDOT Project Engineer. Additionally, a separate MTT will be required to perform quality assurance-level checks and additional testing of the work performed by the Consultant MTT. The quality assurance Consultant MTT is needed for approximately 1.5% of the consultant's time on the project.

CDOT Inspector and Materials Testing Technician (MTT) - CDOT employees who perform construction inspection, construction materials testing services, and other project-related services under the responsible charge and at the direction of the CDOT Project Engineer.

Contractor - The individual, firm, or corporation contracting with CDOT to construct a transportation project.

CDOT Region Materials Engineer – The CDOT Region Materials Engineer (RME) assists the Resident Engineer and Project Engineer on this project with materials related issues including concrete, asphalt, soils and steel.

CDOT Assistant Materials Engineer – The CDOT Assistant Materials Engineer is responsible to the Region Materials Engineer.

Work Duration

The time period for the work described in this scope of work covers the period from approximately January 2011 to October 2013. Work may be required at night and/or day, on weekends and holidays.

Authorization to Proceed

Work shall not commence until written Notice to Proceed is received by the Consultant, and shall be completed in the time specified.

Routine Billing & Reporting

The Consultant shall provide the following on a regular basis:

- 1) Monthly billing formats, suitable to the CDOT Project Engineer and CDOT Resident Engineer, for all contract activities performed by the Consultant.
- 2) Periodic reports and billings as required by CDOT Procedural Directive 400.2.
- 3) Weekly time cards for consultant personnel. The Consultant Professional Engineer, prior to billing, must sign these time cards.

Status of Contract

The Consultant shall monitor the fiscal status of the contract, and advise the CDOT Project Engineer and CDOT Resident Engineer of any potential for supplementing their contract or negotiating an additional task order. Failure to monitor contract status and provide timely notification may result in discontinuation of the Consultant's services on the project until a supplemental agreement can be effected.

Project Standards

All documentation and work shall be in accordance with the latest versions of the Colorado Department of Transportation's Construction Manual, Field Materials Manual, CDOT Laboratory Manual of Test Procedures, Colorado Department of Transportation Inspector's Checklist, Standard Specifications for Road and Bridge Construction, the Supplemental Specifications, applicable M & S standards, CDOT Policy and Procedural Directives, and the construction Contract currently in use when the construction project is advertised, revised under advertisement, and as modified by change order.

References to "the specifications" shall include all applicable CDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications, Standard Special Provisions and Project Special Provisions.

Proposed work procedures shall be coordinated with the CDOT Project Engineer and CDOT Resident Engineer prior to the start of work.

Labor, Materials, Vehicles & Equipment

It is anticipated that CDOT will require at least one Consultant Professional Engineer, one Consultant Assistant Project Engineer, one Consultant Inspector, and one Consultant Materials Testing Technician (as needed).

The Consultant shall furnish all personnel, equipment and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (each equipped with appropriate LED light bars), cell phones, computers, and miscellaneous equipment (calculators, office and lab supplies, safety equipment, etc.) required for performing the work. All consultant personnel shall be subject to the requirements of CDOT Procedural Directive 80.1 **Personal Protective Equipment Use (attached)** as though they were CDOT employees.

Each consultant staff shall be supplied with a state of the art computer w/modem (phone, ISDN or cable as required), a writeable CD, a color printer (that can be networked for all staff or black/white for other staff) and loaded with the most current version of MS Office software (& Site Manager or QA/QC program if applicable).

The Consultant shall have digital cameras available to staff at all times and shall document the project accordingly, submitting CD's with relevant photos to the CDOT Project Engineer on a regular basis.

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the CDOT Project Engineer. The Consultant shall assign personnel for the duration of the project unless otherwise approved by the CDOT Project Engineer.

The following equipment shall be furnished by the consultant for each project in sufficient quantity and in good working order (with current calibration) to ensure accurate performance of all work required in a timely manner:

- Nuclear Asphalt Content Gauge
- Nuclear Moisture-Density Gauge
- Concrete air meter, slump cone, and other concrete testing equipment.
- Sieves for aggregates and soil gradations
- Electronic scales
- Asphalt & A/C sample containers and small tools
- Proctor equipment for soil curves and one point tests
- Atterburg, Rice value, and Sand Equivalent equipment
- Sample drying equipment
- Concrete cylinder molds which meet AASHTO requirements except that paper molds shall not be used, and plastic molds shall not be reused
- Miscellaneous equipment for performing the required soils, asphalt and concrete tests

Engineer's Certification

The CDOT Resident Engineer shall be the final authority regarding acceptance of work performed by the Consultant. The CDOT Region Materials Engineer or CDOT Materials Testing Technician/Inspector will review and sign the CDOT form 250 as it relates to the testing and acceptance of materials. The CDOT Resident Engineer shall be the final authority regarding acceptance of work not conforming to the plans and specifications.

Work Description

The construction-management consultant for the Bronco Arch Bridge Replacement project must have CDOT roadway construction experience with emphasis on bridge construction. Utility and Railroad coordination experience is preferred for the key Consultant staff personnel. The Consultant personnel shall be prepared to work in cold weather conditions.

Correspondence with the Contractor shall be documented using CDOT standard construction methods and approved by CDOT Project Engineer.

The Consultant shall provide support to the CDOT project staff through assignment of personnel to assist with project management/inspection responsibilities. Consultant Assistant Project Engineer and Consultant Inspector responsibilities include:

Assist the CDOT Project Engineer in performance of the following Construction activities:

- Preparing and transmitting updates of construction activities to the CDOT's Public Information Office.
- Periodic reports and billings required by CDOT Procedural Directive 400.2.
- Monitoring contractor payroll compliance.
- Participation in weekly progress and safety meetings with contractor, subcontractors, utilities and other interested parties.
- Securing project documentation from the contractor.
- Anticipating project problems and directing solutions to CDOT Project Engineer.
- Reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the intent of the specifications. Inform and obtain concurrence as needed from the CDOT Project Engineer and keep relative documentation for project records.
- Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans, concurrently with the work being performed.
- Communicating with adjacent landowners as required to resolve issues that arise due to construction.
- Monitoring compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT).
- Initial, follow up, and final inspections of work in progress including interim and final measurements.
- Notifying contractors and CDOT Project Engineer of non-compliance with the contract plans and specifications

- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program
- Ensure compliance with permits such as 404 and NPDES.
- Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures
- Submittal of standard documentation reports no later than the following working day,
- Aiding in the preparation of correspondence to the contractor, CDOT Staff, local agencies, etc.
- Providing liaison and communication to contractor field crews
- Preparation of final "As Constructed" plans upon project completion
- Miscellaneous related duties as requested by the CDOT Project Engineer
- Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
- Assist in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, disputes, claims, and correspondence.
- Coordination with and submittals to Denver Rail Heritage Society following their most recent guidelines.

The MTT (Materials Testing Technician) shall sample, test, and document all materials incorporated into the project. This includes materials delivered to the project that are listed in the Summary of Approximate Quantities. The number of tests required shall be in accordance with the Schedule in the Field Materials Manual and CDOT Forms 250 and 379. Additional quantities may be added by Contract Modification Order, or plan approximate quantities may be increased or decreased. The MTT and Consultant Assistant Project Engineer shall review project quantities on a weekly basis to ensure that sufficient tests have been performed for all material placed to date. The consultant shall also provide any other services such as inspection as requested by the CDOT Project Engineer.

Testing of materials that are specifically designated to be pre-inspected or pre-tested by this or any other Department of Transportation shall remain the responsibility of CDOT. The MTT shall document and transport samples of any and all materials to the CDOT Region or Central Laboratory that are required to be tested by CDOT, regardless of pre-inspection or pre-testing responsibilities.

The items and test frequencies of CDOT tested materials shall be in accordance with the column titled "Central Laboratory" in the Schedule in the Field Materials Manual.

Project Meetings

The Consultant personnel shall be present at all project meetings as required. The Consultant Assistant Project Engineer and Consultant Materials Testing Technician shall be required to attend Project Preconstruction Meeting, Project Partnering Meeting, and other meetings prior to commencement of the project as directed by the CDOT Project Engineer.

Documentation

The Consultant shall provide all correspondence and applicable CDOT forms to the CDOT Project Engineer or his authorized representative for review and signature.

The Consultant personnel shall be capable of preparing CMO's, justifications for CMO's and MCR's; price justification (force account analysis); review of MHT's, construction quantity calculations required for this type of project; inspection reports; daily diaries; Site Manager; review of 205's; and other construction administration documentation required per CDOT Construction Manual.

Each of the Consultant's personnel shall maintain a daily diary for each day they perform work on the project. They shall use CDOT's Automated Form 103a - Project Diary unless otherwise approved by the CDOT Project Engineer. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be given to the CDOT Project Engineer within one working day of its date.

Personnel Qualifications

Interested consultant firms are strongly encouraged to visit the project site in advance of preparing a proposal to perform this work.

CDOT is seeking a comprehensive project team to manage construction of the Bronco Arch Bridge Replacement project. The team shall include a Consultant Professional Engineer, a Consultant Assistant Project Engineer, one Consultant Inspector, and one Consultant Materials Testing Technician (on an as-needed basis), as well as a second Consultant MTT to perform quality assurance (approximately 1.5% of the consultant's time on the project) of the first Consultant MTT's work. The project will be advertised for construction in January 2011. The Consultant shall provide personnel to work all shifts as required by the Contractor's schedule. The exact personnel requirements will be determined upon receipt of the successful bidder's construction schedule.

The selected Consultant will have strong experience in developing and analyzing critical path scheduling, public relations, bridge construction, roadway construction, utilities, environmental work and compliance, and retaining walls. The CDOT Project Engineer will be expected to handle the schedule and daily public-relations issues. The Consultant will be expected to work in Site Manager. Previous experience in coordination with utility companies, public and private entities and with CDOT policies and procedures is strongly preferred.

Personnel qualifications and staffing levels for the project shall be subject to the approval of the CDOT Resident Engineer. CDOT will reserve the right to review the resume and interview any new proposed staff to the project. The Consultant shall be certified as defined by the requirements set forth in this scope of work.

The Consultant Professional Engineer will be physically present on the project site as much as necessary to assure the safety of the project, the personnel and the traveling public, and the quality of work performed by the Contractor and by the consultant. Bridge construction experience is highly desirable. This level of involvement could be considered quality assurance of safety and the consultant's and Contractor's work and operations.

The Consultant Assistant Project Engineer and the Consultant Inspector shall have the qualifications and certifications described in CDOT Policy Memo #25, dated March 4, 2005 (attached), the mandatory Traffic Control Supervisor training as described in CDOT Policy Memo #22, dated September 9, 2004 (attached), as well as other certifications relevant to the project.

The Consultant Assistant Project Engineer shall have at least 4 years of Bridge Construction experience as a Project Engineer on CDOT projects, either with CDOT or as a consultant. The Consultant Assistant Project Engineer will be required to work night shifts if necessary.

The Consultant Assistant Project Engineer shall have the following experience or skills:

- Review and analyze construction schedules and methods statements
- Prepare Contract Modification Orders
- Force account analysis
- Public relations (working with local communities and agencies)
- Bridge construction

One consultant Inspector will be required on the project. The Inspector will primarily perform inspection on roadway, bridge, retaining wall, and traffic control work as needed. Other inspection and paperwork duties may also be required.

The Inspector shall also have the following experience:

- o Review and approve Method of Handling Traffic and shall have taken the Traffic Control Supervision class.
- CDOT experience with the federal project requirements such as OJT, review of 205's, have done interviews to complete CDOT form 280, and have reviewed Davis-Bacon wages.

Other skills to be highly considered for all personnel:

- Utility coordination
- Wide load coordination
- Working with CDOT Public Relations representative for periodic and timely press releases for construction activities
- Wetlands (404 Permit)
- Survey experience
- Bridge-inspection experience

All the Consultant staff (except the tester) shall be familiar with and possess experience using the Site Manager program to enter CMO's, 266 inspection forms, and other areas if needed. All Consultant Staff shall be thoroughly familiar with CDOT forms and documentation requirements.

The Consultant shall also provide any other services as requested by the CDOT Project Engineer.

The Consultant Materials Testing Technician (MTT or Tester) shall have experience in precast and cast in place concrete, asphalt, earthwork, and certifications accordingly. The MTT shall review project plans, specifications, and the current version of the CDOT Field Materials Manual and the project specific CDOT Form 250 to determine the number of testers required to complete the project

and the number and type of test that will need to be performed on the project. The MTT and the CDOT Project Engineer shall meet on a regular basis prior to start of project to address any questions or issues involving testing procedures, frequency, or documentation. Additional testing may be required if requested by the CDOT Project Engineer or CDOT Resident Engineer. The MTT shall be thoroughly familiar with CDOT forms and documentation requirements. The consultant-supplied Materials Testing Technician shall be permanently assigned to the project and shall provide copies of the following qualifications:

- The MTT performing concrete tests shall be certified by The American Concrete Institute (ACI).
- The MTT performing hot bituminous pavement tests shall be Level II, A&B certified by The Colorado Asphalt Technician Certification Program (LabCAT).
- WAQTC, Soils Certification

Personnel provided by the Consultant who do not meet all of the specified requirements, or who fail to perform their work in an acceptable manner, shall be removed from the project when determined and directed by the CDOT Project Engineer or CDOT Resident Engineer.

Back-up Consultant resources should be available in case of loss of staff, sickness, or vacations or as required for the project.

CONSTRUCTION MANAGEMENT REQUIREMENTS CHECKLIST

The following checklist shall be used to establish the Construction Management responsibilities of the individual parties for this project.

The checklist shall be prepared by placing an "✓" under the responsible party opposite each of the tasks listed below.

When a task does not apply to the project, not-applicable "NA" shall be placed under both parties.

Tasks that will be performed by CDOT Headquarters staff will be so indicated.

The Region in accordance with established policies and procedures shall determine who will perform all other tasks that are the responsibility of CDOT.

DESCRIPTION OF TASK	CONSULTA NT	CDOT
1. Conduct the Pre-Bid conference, answer all		
questions, and maintain a log of all decisions given	✓	
and/or made.		
2. Show project work site to prospective bidders,		
answer all questions regarding plans and	П	П
specifications, and maintain a log of all decisions		
given and/or made.		
3. Coordinate all construction contract activities with		П
appropriate stakeholders.		
4. Distribute ten award sets of plans and specifications		П
to the CDOT Resident Engineer.		_
5. Issue Notice to Proceed to the Contractor.		
6. Schedule, conduct and prepare minutes of all		
project meetings as follows:		
a. Job Showing		
b. Pre-construction Conference		
c. Partnering Workshop (if required)		
d. Weekly Project Meetings		
e. Pre-Survey Conference (if required):		
(1) Construction Staking		
(2) Survey Monumentation		
f. Bridge Construction Communications		
g. Structural Concrete Pre-pour Conference		
h. Concrete Pavement Prepaving Conference		
i. HBP Prepaving Conference		
j. Contractor Weekly Safety "Tool Box" Meeting		

DESCRIPTION OF TASK	CONSULTA NT	CDOT
8. Public Relations:		
a. Prepare and coordinate with CDOT and others to		
publish and distribute public notices of all planned		
construction activities and schedules to the media,		
property owners, local residents, tenants, and other		
appropriate stakeholders affected by the project.		
b. Perform public relation tasks with appropriate	П	
individuals as requested by CDOT.		
c. Explain construction and work with adjacent	_	_
property owners to resolve issues that arise during		
construction.		
9. Review, comment, accept and/or approve as		
appropriate the following submittals:		
Note: This list is not all-inclusive and other		
submittals may require action as directed by CDOT.		
a. CDOT Form # 205 – Sublet Permit Application		
after Form #713 has been checked by the Region		
EEO Administrative Program Specialist.		
b. Method of Handling Traffic		
c. Progress Schedules		
d. Method Statements		
e. Shop drawings per 105.02		
f. Working drawings per 105.02		
g. Other submittals per 105.02		
h. All EEO, Labor compliance requirements		
i. Other submittals as directed		
10. Construction inspection including calculations,		
measurements, and documentation of interim and		
final pay quantities as directed by the Project		
Engineer.		
11. Perform required EEO/AA/DBE/OJT or labor		
compliance tasks as requested as follows:		
a. Conduct Contractor/Subcontractor reviews to		
ensure conformance with the Equal Employment		
Opportunity (EEO)/Affirmative Action		
(AA)/DBE/OJT requirements contained in the		
contract. (Standard Special Provisions, Project		
Special Provisions and FHWA Form 1273.)		

DESCRIPTION OF TASK	CONSULTA NT	CDOT
 b. Complete and submit to the CDOT Project Engineer, the required number of CDOT Form 280 Equal Employment Opportunity and Labor Compliance Verification. 		
c. Monitor DBE participation to ensure compliance with the "commercially useful function" requirements.		
d. Complete and submit to the CDOT Region EEO Administrative Program Specialist, the applicable number CDOT Form #200 – OJT Training Questionnaire, when project utilizes OJT's.		
e. Check certified payrolls to verify contractor/subcontractor compliance with contract requirements. Project personnel trained in payroll checking shall complete the checking. (Contact the Region EEO Administrative Program Specialist for training requirements.)		
f. Coordinate submittals by Contractor and all subcontractors of FHWA Form 1391 (Highway Construction Contractor's Annual EEO Report) to the CDOT Region EEO Administrative Program Specialist.		
12. Materials:		
a. CDOT Form # 250 – Materials Documentation Record:		
(1) Fill out and distribute CDOT Form # 250 before the Contractor commences work.		
(2) Complete Form # 250 after work is completed; distribute per instructions in CDOT Materials Manual.		
b. Approve changes to the Typical Section (requires a CMO).		
c. Development, checking and design mix approvals:		
(1) Concrete		
(2) Hot Bituminous Pavement		
d. Acceptance of manufactured products		
e. Inspecting fabrication of structural steel and precast concrete structural components.		
f. Inspecting fabrication of bearing devices		
g. Laboratory check testing.		

DESCRIPTION OF TASK	CONSULTA NT	CDOT
h. Acceptance testing.		
i. Independent assurance testing - develop,		
complete and distribute CDOT Form # 379 –		
Project Independent Assurance Sampling		
Schedule.		
j. Approve sources of materials.		
13. Maintain time counts		
14. Maintain project files for documentation; provide		
duplicate documentation to CDOT Project		
Engineer when requested.		
15. Obtain, accept, and approve all required material	П	
certifications.		
16. Approve shop drawings		
17. Perform Traffic Control Inspections		
18. Approve traffic signal equipment		
19. Construction surveying – quality control checking	П	
and quantity verification as needed.		
20. ROW Monumentation – quality control checking		
21. Prepare monthly estimates of the Contractor's		
work performed, materials placed or stockpiled		
materials on hand in accordance with the Contract.		
Note: Only a CDOT Project Engineer or Resident		
Engineer can approve and sign vouchers for		
interim and final Contractor pay estimates.		
22. Review interim and final billings for Utility		
relocation work.		
Note: Only a CDOT Resident Engineer can		
approve and sign vouchers for interim and final		
Utility Company billings.		
23. Prepare CDOT Form # 90 [Contract Modification		
Order (CMO)] and/or # 90 [Minor Contract		
Revision (MCR)] including letter of explanation	_	_
for CMO/MCR Note: The Consultant may negotiate costs for extra work but only CDOT can approve costs. Only the		
CDOT Resident Engineer can approve and sign		
CMO/MCR's for modifying CDOT's Contract or paying the		
Contractor.		
24. Monitor project financial status and submit		
monthly in a format acceptable to the Region, such		
as CDOT Form # 65a – Project Financial Status		_
Report.		

DESCRIPTION OF TASK	CONSULTA NT	CDOT
25. Prepare and submit monthly progress reports to the Region Program Engineer: CDOT Form # 110a – Status of Active Construction Projects and CDOT Form # 517a – Status of Construction Project Finals		
26. Prepare appropriate responses to Contractor, subcontractor or supplier requests for information, submittals, disputes, claims, change notices, or other correspondence.		
27. Prepare response for Project Engineer status of claim & Claim Status Report Form		
28. Prepare complete claim record		
29. Give oral or written presentation to Region Director for claims.		
30. Give presentation for Dispute or Claim Review Board or AAA Arbitration board.		
31. Conduct routine, random, project reviews to ensure the project is being administered in accordance with the terms of the construction contract.		
32. Conduct final project inspection of completed or unacceptable work and prepare punch list for final acceptance.		
33. Prepare and submit CDOT Form # 1212a – Final Acceptance Report		
34. Prepare final project acceptance letter and distribute per procedures in the CDOT Construction Manual.		
35. Advertise for final settlement.		
36. Maintain accurate as constructed notes and prepare and distribute final as-constructed plans per procedures in the CDOT Construction Manual.		
37. Check final quantities, final plans, and prepare the final pay estimate. <i>Note: Only CDOT can sign final pay estimate sheets and voucher.</i>		
38. Check material records.		
39. Submit final materials certifications		

DESCRIPTION OF TASK	CONSULTA NT	CDOT
40. Obtain and review CDOT Form # 17 – Contractor	_	_
DBE Payment Certification from the Contractor		
and submit to the Region.		
41. Obtain and review FHWA Form PR 47 (Statement of		
Materials and Labor Used) from the Contractor, check		
and submit to the Region.		
42. Complete and submit CDOT Form # 950 for project		
closure.		
43. Submit original of all project records to the CDOT		
Project Engineer. (CDOT will retain project records		
for six years from the date of project closure.)		

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Chief Engineer 4201 E. Arkansas Ave. #262 Denver, CO 80222 (303) 757-9206 (303) 757-9656 Fax



Date:

March 4, 2005

To:

Region Transportation Directors, Professional Engineer III's, and Resident Engineers

From:

Craig Siracusa, Chief Engineer Chay Snaam

Subject:

Construction Inspector Qualification Program

Policy Memo 25

As a follow up to the memo issued on October 25, 2004, I would like to communicate progress in the implementation of the CDOT Inspector Qualification Program. The Inspector Qualification Board of Directors has developed the following policies in regard to prerequisites, certification requirements and program implementation.

Required Prerequisite Classes:

- Technical Series (EPS Assistant I thru EPS Technician III)
 - o Basic Highway Math
 - o Basic Highway Surveying
 - o Basic Highway Plan Reading
 - o Erosion Control Supervisor
- Professional Series (EIT I thru EIT III)
 - o Basic Highway Surveying
 - o Basic Highway Plan Reading
 - o Erosion Control Supervisor

The specialty certifications, such as CAPA Asphalt Inspection, WAQTC, and Major Structures, will only be required when an inspector is working on a project where those items of work are performed. For example, a person working on an asphalt overlay would need the pre-requisites plus the CAPA asphalt inspection; a person working on an embankment would need the pre-requisites plus the WAQTC soils; etc. The specialty training requirements apply to the full range of both the technical and professional series listed above.

Supervisors will be required to anticipate and incorporate the required specialty training needs into training plans as required by project assignments.

Resident Engineers are also encouraged to look at the background of their Project Engineers (both licensed and not licensed). Resident Engineers should include the categories that they believe are appropriate in the Project Engineers' training plans as well.

Program Implementation:

- The above requirements will be mandatory on CDOT projects after March 1, 2006.
- The scopes of work in future consultant contracts must include the certification requirements for inspectors effective March 1, 2006.

The qualification program products can be accessed both internally and externally at:

http://www.dot.state.co.us/CHRMEmpCorner/empdev.cfm

I encourage you to begin to work with your employees to structure a plan that addresses the specific needs.

DEPARTMENT OF TRANSPORTATION

Safety and Traffic Branch 4201 East Arkansas Avenue, Empire Park B770 Denver, Colorado 80222 (303) 512-5100 FAX (303) 757-9219



DATE:

September 9, 2004

Timothy Harris, Director of Staff Services

FROM:

Gabriela Vidal, Safety and Traffic Branch Manager

Mandatory Traffic Control Supervisor Training

Policy Memo 22

Mandatory Traffic Control Supervisor Training

September, 2004

The CDOT is always striving to improve work zone safety. Managements philosophy is, "That employees and contractors shall receive detailed training on Traffic Control Supervision so all parties involved in the construction of projects understand and utilize the best practices and procedures when setting up, working in and taking down work zones."

Note: This policy does not change the certification requirements for the TCS or other personnel that are presently required to be certified.

Definitions

- □ ATSSA American Traffic Safety Services Association
- □ CCA Colorado Contractor's Association
- Certificate of Achievement or Completion The Certificate issued by CCA upon completing the 2-day Traffic Control Supervisor (TCS) training and passing the test. The Certificate of Achievement or Completion from CCA will serve as written proof from CCA that a passing score was achieved on the Traffic Control Supervisor Exam. The 1-day Traffic Control Technician (TCT) along with the 2-day Traffic Control Supervisor (TCS) training provided by ATSSA may be substituted. Written proof from ATSSA that an eighty percent or higher score was achieved on both the Traffic Control Technician and Traffic Control Supervisor Exam is required.

CDOT Personnel

In order to achieve the goal of improving work zone safety, Safety and Traffic Branch is utilizing 402 Roadway Safety Program funds to provide a 2-day Traffic Control Supervisor class for CDOT employees. The following CDOT individuals must obtain a Certificate of Achievement or Completion by July of 2006:

- CDOT personnel that work on construction projects, including maintenance personnel and Resident Engineers.
- □ CDOT new hires that work on construction projects need to complete the training within 12 months.

After obtaining their supervisor's permission, an individual can register for a regularly scheduled CCA class by returning the attached registration form to CCA at the fax number indicated on the registration form. If the Region wishes to have a class in the Region then they need to establish a point of contract and have that person contact Terry Kish of CCA at 303-290-6611. See the attached announcement



Contractor Superintendents

By July 1, 2005, all Contractor Superintendents must obtain a Certificate of Achievement or Completion. Contractor personnel will need to arrange for their own training through either CCA or ATSSA.

All projects that have bids opened after July 1, 2005 will include a Project Special Specification, which will require the Contractor's Superintendent to have the Certification of Completion.

Continuing Training and Specifications

Continuing Training Requirements-

Once every three years a refresher course of 4-8 hours in length must be taken. The Refresher course is yet to be developed.

If there are questions relating to training please contact Dwayne Wilkinson @ 303-512-5134.

Specifications that must be used:

The Project Special Specification that will require the Contractor's Superintendent to have the Certification of Completion for the two day TCS course will be posted on the following web site prior to June 1, 2005.

http://www.dot.state.co.us/S Standards/specs 1999/special provisions 1999.html

If there are questions regarding the specifications please contact K.C. Matthews at 303-757-9543.

Since these Specifications may undergo change through use, it is suggested that the link above be used at the time Plans are finalized.

I Concur Chief Engineer Date

COLORADO DEPARTM TRANSPORTATION	ENT OF		□ POLICY DIRECTIVE■ PROCEDURAL DIRECTIVE	
Subject:				Number:
Personal Protective Equip	oment Use			80.1
Effective:	Supersedes:	Originating Office:		
11-01-2009	06-03-04	Office of Transportation	n Safety (OTS)	

PURPOSE

This document provides a procedure for the use of personal protective equipment by all CDOT personnel.

AUTHORITY

Executive Director Governor's Executive Order DO 138 89 (Safety in the Workplace) Policy Directive 80.0, Occupational Safety & Health

APPLICABILITY

This procedural directive applies to all CDOT employees. If CDOT cannot provide the required Personal Protective Equipment (PPE), and an employee chooses to purchase their own PPE, it must be coordinated and approved through the Region Safety Officer.

DEFINITIONS

ANSI—American National Standards Institute is a standards promulgating organization.

ASTM—American Society for Testing Materials.

Eye/face protection—Equipment designed to protect the eyes and face from injury due to flying objects and chemical sprays. Eye and face protection equipment shall comply with ANSI Z87.1-2003 (R1999), "Standard for Occupational and Educational Eye and Face Protection".

<u>Fall protection</u>—Equipment designed to protect the wearer from falling to the ground when working at heights of 6 feet or more above the ground/floor level. Fall protection equipment shall comply with ANSI 1264.1 2007 (R1999).

<u>Foot protection</u>—Equipment designed to prevent or minimize foot injury resulting from heavy object impact and sharp object puncture. Foot protection shall meet ASTM F2413-05 M/I/75/C/75 standard for industrial foot protection.

<u>Hand protection</u>—Gloves and hand-wear designed to protect the wearer from hand injury. Hand protection shall meet ANSI/ISEA 105-2000 standard for industrial hand protection.

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<u>Head protection</u>—Headwear designed to protect the wearer from falling and flying objects, and electrical contact that could injure the head. Head protection shall comply with ANSI Z89.1-2003, "American National Standard for Personnel Protection-Protective Headwear for Industrial Workers-Requirements".

<u>Hearing protection</u>—Devices designed to protect the worker's hearing from damaging noise produced by explosives, machinery and equipment by attenuating the sound entering the ear channel. These devices include earplugs, earmuffs, etc.

<u>High-Visibility Safety Apparel</u>—Personal protective safety clothing intended to provide conspicuity during daytime and nighttime usage, which meets ANSI/ISEA 107-2004 Standard for High-Visibility Safety Apparel.

- Performance Class 1—217 square inches of background material and 155 square inches of retroreflective materials. Minimum width of retro-reflective material is 1 inch.
- Performance Class 2—775 square inches of background material and 201 square inches of retroreflective materials. Minimum width of retro-reflective material is 1.375 inches.
- Performance Class 3—1,240 square inches of background material and 310 square inches of retroreflective materials. Minimum width of retro-reflective is 2 inches.
- Performance Class E—465 square inches of background material and 108 square inches of retroreflective materials. Minimum width of retro-reflective is 2 inches.
- Headwear—78 square inches of background material and 10 square inches of retro-reflective materials. No minimum on width of the materials.
- <u>NOTE:</u> A Performance Class 2 or Performance Class 3 vest worn with a Performance Class E pant will equal a Performance Class 3 Ensemble.

ISEA — International Safety Equipment Association

<u>Mandatory PPE</u>—Required protective equipment for all highway and construction related activities, e.g. safety vest, foot protection, CDOT hardhat, safety glasses, work gloves, and hearing protection.

NIOSH—National Institute of Occupational Safety and Health

PPE—Personal Protective Equipment

<u>Protective clothing</u>—Clothing designed to shield the wearer from cold, heat, chemicals, and other natural and manmade environments.

Respiratory protection—Equipment designed to protect the worker from the hazards of respiratory contaminates. Respiratory protection devices shall comply with ANSI Z88.2-1992 standard for respiratory protection, and must be NIOSH approved.

<u>Special Protective Equipment</u>—Protective equipment used in specific/special situations, e.g. avalanche control, explosive handling, confined-space operations, herbicide application, bucket trucks, etc.

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<u>Visitor</u>—All non-CDOT employees and non-contract personnel, and all CDOT employees and contract personnel visiting construction and maintenance areas to attend meetings; for taking official tours; or incidental/casual construction and maintenance project stop-bys

RESPONSIBILITIES

Management Responsibility

Management must ensure that all safety policies and procedures are followed by all CDOT employees, and to take appropriate actions when policy and procedure violations occur. Region Safety Leadership will insure that training is made available to all region supervisors and employees with respect to the proper wearing and use of personal protective equipment (PPE), and the recognition and avoidance of workplace hazards.

Supervisor Responsibility

Each supervisor shall ensure employees are wearing the appropriate personal protective equipment for the operations and situations encountered by the employee to reduce the risk of injury, and to promote a safer working environment for the employee. Each Supervisor shall instruct their employees in the recognition and avoidance of work related hazards, and in safety regulations applicable to the work environment. The supervisor will provide training to their employees in the proper wearing and use of personal protective equipment. The supervisor will advise employees of enforcement actions applicable to PPE noncompliance, and shall document and report violations of this procedural directive.

Employee Responsibility

Each employee is required to wear the mandated personal protective equipment specified for the work activity being performed. Each employee shall be given a copy of this directive to sign after being instructed in the use of the personal protective equipment by his or her immediate supervisor.

ACCOUNTABILITY

All CDOT employees shall comply with safety standards, rules and regulations designed to protect their safety and health in the work place. Employees, who willfully fail to obey safety rules and regulations, observe and follow procedural directive, memoranda, bulletins or other safety related instructions pertaining to safe work practices, shall be subject to corrective or disciplinary actions as provided by the State Department of Personnel Rules and Regulations.

Safety Violations and Worker's Comp

When an employee suffers a personal injury or illness due to the employee's willful failure to properly wear or use the personal protective equipment issued by CDOT, as required by this directive, or by the employee's willful failure to obey any reasonable safety rules or directives adopted and posted by CDOT, such failure may reduce any injury compensation.

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BASIC SAFETY EQUIPMENT

Available Safety Equipment

These are personal protective equipment items available to employees by CDOT:

- Hardhat
- Retro-reflective safety vest
- Retro-reflective safety pant
- Retro-reflective Arm/Leg bands
- Retro-reflective Gators
- Safety glasses
- Safety goggles
- Hearing protection
- Safety boots
- Protective clothing
- Respirators
- Gloves

The Supervisor, Branches and Regions should order and provide other personal protective equipment required to provide a safe working environment for CDOT employees. Contact the CDOT Safety Office to ensure ordered safety items meet current safety standards and specifications.

Visitors

CDOT shall provide an orange hardhat, and appropriate high-visibility apparel to all those visiting CDOT operations within the right-of-way, or in other locations presenting recognized safety hazards.

Vehicle and Equipment Operation Seatbelt Usage

All operators and passengers in CDOT or personal automobiles traveling on CDOT business shall utilize and wear the vehicles personal restraint system (seatbelt and shoulder harness). All equipment operators and passengers shall utilize and wear the factory installed, or CDOT retrofitted, operator restraint system when operating any equipment. No passengers shall ride on equipment unless, (1) the equipment is designed for passengers, and (2) the equipment has factory installed or CDOT retrofitted passenger restraint devices.

CDOT SAFETY REGULATIONS GOVERNING THE USE OF PERSONAL PROTECTIVE EQUIPMENT

HEAD PROTECTION

CDOT hardhats shall comply with ANSI Z89.1-2003, "American National Standard for Personnel Protection-Protective Headwear for Industrial Workers-Requirements". Hardhats shall be issued to and worn by all

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employees when their job tasks require them to work outside, on construction sites, or while operating mechanized equipment, e.g. forklifts, loaders, pavers, etc., and in all situations where the potential for head injury from falling objects and overhead obstructions exist. The wearing of a hardhat is optional when operating mechanized equipment constructed with a completely enclosed cab system with factory-installed roll over protection (ROP). There is no requirement to wear the hard hat when traveling inside a vehicle or when inside a building, unless the indoor work situation presents a hazard from falling objects or overhead obstructions.

HIGH-VISIBILITY OUTER GARMENTS

All safety garments worn on CDOT projects shall comply with ANSI/ISEA 107-2004 Standard for High-Visibility Safety Apparel. For <u>daytime operations</u>, all CDOT employees and contractors shall wear, at a minimum, ANSI/ISEA Performance Class 2 high-visibility safety garments (Figure 1 in Appendix) while working within the right-of-way, on construction projects, and in any area where they might be exposed to vehicular traffic. For <u>nighttime operations</u>, all CDOT personnel and their contractors will wear appropriate ANSI/ISEA Performance Class 3 Ensemble (Figure 2 in Appendix), or a Performance Class 3 vest (Figure 3 in Appendix). Nighttime operations is defined as any work that occurs from "Dusk till Dawn".

EYE AND FACE PROTECTION

CDOT issued eye and face protective equipment shall comply with ANSI Z87.1-2003 (R1999), "Standard for Occupational and Educational Eye and Face Protection". All employees shall wear eye and/or face protection when performing tasks that present a potential eye or face injury hazard from physical activities, chemical, grinding and sanding tasks, spray painting, or radiation agents. Employees shall wear both safety/chemical goggles and face shield when working with chemicals, since safety goggles alone are not sufficient protection against chemical splashes.

HEARING PROTECTION

Hearing protection devices are provided as part of an overall hearing conservation program. CDOT issued hearing conservation devices shall be worn by all employees working in areas where machines or operations present potential hearing damage caused by noise exposure, which exceed 85 decibels on average in an 8 hour period. Traffic noise on city streets or construction projects exceeds the 85 db threshold. All employees engaged in blasting or avalanche control operations shall wear the appropriate hearing protection. Supervisors should contact the CDOT Occupational Safety Office when a belief that noise levels in your work area(s) are exposing employees to excessive noise levels.

RESPIRATORY PROTECTION

CDOT issued respiratory protective devices shall comply with ANSI Z88.2-1992 standard for respiratory protection, and must be approved by NIOSH. All employees shall wear the appropriate respiratory protection where an exposure to respiratory contaminants is likely to have adverse effects on the health of the employee. Welding, vehicle painting, sanding and grinding of painted materials, are examples of activities that may produce contaminants harmful to the employee's health. Beards and large mustache will decrease the effectiveness of certain respirators by preventing the formation of a tight seal around the face. When this situation occurs, an appropriate respirator will be provided to the employee. When an alternative respiratory protection device fails to protect the employee, the employee will either reduce the quantity of facial hair, or be

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reassigned to other duties. Employees shall *only* wear respiratory protection after medical approval, proper fitting of respirator, and the employee obtains training on the limitations, care and operation of the respirator.

FOOT PROTECTION

CDOT Protective Footwear must meet or exceed ASTM F2413-05 M/I/75/C/75 for safety footwear. Construction will be a work boot style, made of leather or other suitable material, have a minimum of a 6" upper above the ankle, be a lace-up type for ankle support, have a steel or composite toe protection, have a slip resistant sole, and can be insulated or non-insulated. Exceptions to these requirements will be made on a case-by-case basis. Such exceptions may include slip-on type boots for employees classified as welders and employees with a documented medical condition requiring special footwear. CDOT will provide safety footwear to those employees in occupational classes requiring such equipment. Permanent and permanent part-time employees will be provided protective footwear. Temporary employees will not be provided protective footwear. All CDOT employees working in field assignments or have supervisor approval shall wear appropriate ASTM compliant protective footwear. These assignments include working in storerooms, highway maintenance activities, construction activities, mechanics, or any situation where equipment operations or the movement or lifting of heavy materials could cause injury to the feet. Visitors to construction sites are exempt from wearing safety boots, unless the wearing of safety boots is required by the company safety policy or as a condition to entering the worksite. Employees shall not wear inappropriate footwear in any location where the potential exists for foot and toe injury, e.g. tennis shoes, sandals, sneakers, clogs, etc.

HAND PROTECTION

CDOT issued protective gloves shall meet ANSI/ISEA 105-2000 standard for industrial hand protection. All employees shall wear hand protection when performing any activity that may cause injury to the hands.

SAFETY BELTS, LIFELINES, AND LANYARDS

CDOT issued safety belts, lifelines, and lanyards shall comply with ANSI Z359.1-2007 (R1999). All employees shall wear fall protection when working at elevations 6 feet or greater from the floor or ground level, e.g. bucket vehicles, bridge activities, roof repairs, man-lifts, scaffolds, formwork, etc.

Exceptions:

Working on vehicles or equipment at heights exceeding 6-feet will not require the use of fall protection where such use would be impractical or would present a greater danger to the employee. Working on ladders is also excluded from the fall protection requirement.

LIFE JACKET OR BUOYANT WORK VESTS

United States Coast Guard (USCG) approved personal flotation devices shall be worn by CDOT employees working over or near water where the risk of drowning exists. USCG approval is pursuant to 46 CFR Part 160, Subpart Q, Coast Guard Lifesaving Equipment Specifications. Personal flotation devices (PFD) are classified by type. CDOT will provide Type I PFD, which provides the most buoyancy. It is effective for all waters,

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especially open, rough, or remote waters where rescue may be delayed. It is designed to turn most unconscious wearers in the water to a face-up position.

SPECIAL PROTECTIVE CLOTHING OR PROTECTIVE DEVICES

The Supervisor, Branches and Regions should order and provide other personal protective equipment required to provide a safe working environment for CDOT employees as the need arises.

TRAINING REQUIREMENTS

All CDOT employees will receive training in the proper usage, care and storage of all personal protective equipment.

IMPLEMENTATION

All divisions and offices of the CDOT shall implement this procedural directive immediately.

REVIEW DATE

This procedural directive shall be reviewed before October 2014 or every five years.

SIGNATURES

Lussee George	11/01/2009	
Executive Director Signature	Date	_

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<u>Perso</u>	onal Protective Equipment		
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Emple	oyee Signature	Date	
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cc:	Employee		
	Supervisor Employee's Personal History Jacket		

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APPENDIX







Figure 1 Performance Class 2 Vest

Figure 2
Performance Class 3
Ensemble

Figure 3
Performance Class 3 Vest